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7.2 Operational Waste Reduction and Recycling

Commercial buildings, including Federal facilities, generate nearly 90 million tons of municipal solid waste per year (EPA, 1999). On September 14, 1998, Executive Order 13101, *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*, was issued to further expand and strengthen the Federal government's commitment to recycling and to purchasing recycled-content and environmentally preferable products. Federal facilities have the potential to conserve natural resources—from energy to water to the trees that are made into office paper—by the way in which buildings are operated, provisioned, and serviced. The three-R hierarchy of resource conservation—Reduce, Reuse, Recycle—can reduce overall waste and save money as well. Recycling helps keep financial resources within a community—producing jobs and generating other economic benefits. Strong, proactive recycling programs at government facilities also serve as an important model for the communities where they are located and can project a positive public image.

Opportunities

There are few aspects of facility management in which opportunities for operational waste reduction and recycling do not exist. Opportunities are particularly great in the areas of building and equipment maintenance, office operation, housekeeping, and waste management services.

Building and equipment maintenance is, by definition, involved in waste reduction. Well-maintained buildings and equipment prolong service life and reduce the waste associated with production of the new and disposal of the old. Maintenance activities do, however, generate waste, particularly potentially hazardous waste such as used motor oil, waste hydraulic and cooling fluids, and solvents. All these materials can be recycled and, in fact, their hazardous contents often favor recycling over disposal.

Waste reduction and recycling associated with business operations involving paper, cardboard, glass, metals, and plastics require a coordinated effort among office, cleaning, and waste management personnel and services. Strategies for office waste and recycling are a key component of EPA's WasteWise program (see box, next page). A growing number of Federal WasteWise partners—more than 40 to date—and award winners demonstrate the tremendous opportunities and savings associated with operational waste reduction and recycling.

Source: Windsor Barrel Works

Installation of 95%-recycled-content collection barrels at Mount Rushmore National Park (in configurations like these from the Denver Zoo) has resulted in recycling of more than 90% of the aluminum cans that two million annual visitors used to throw in the trash.

Technical Information

Both EPA's WasteWise program and the *Greening the Government* initiative provide excellent resources for, and success stories of, operational waste reduction and recycling. While factors such as facility location, local waste disposal costs, existing recycling markets, and quantities of materials generated all have an impact on the recycling opportunities for a given facility, several key elements of a waste reduction and recycling program will help to ensure success:

- **Comprehensive planning:** Every aspect of a facility's operation should be included in a program so that each waste material is treated in the same manner throughout the facility.
- **Buy-in throughout facility:** No program for waste reduction and recycling can succeed without the full knowledge and support of all staff. Implementation must be as comprehensive as the program.
- **Recognition:** Let staff know the impacts—both in terms of natural resources and dollar savings—of their reduction and recycling efforts; consider an awards program.
- **Feedback:** Every program has to be tailored both to the existing conditions at a facility and to future

changes. Provide an easy feedback mechanism so that the waste reduction and recycling program responds to "ground-level" conditions.

1999 WasteWise Award Winner: U.S. Postal Service, Northeast Area—The U.S. Postal Service Northeast Area's 74,135 employees in 3,114 post offices throughout the New England states and upstate New York continued to demonstrate their strong commitment to reducing the generation of undeliverable standard mail throughout 1998. The Postal Service reduced 1,087 tons of bulk mail and saved $76,000 by promoting the national change of address program to major mailers. It also reduced the generation of solid waste at 25 vehicle maintenance and 29 processing and distribution facilities by 50% over fiscal year 1992 generation rates.

1998 WasteWise Accomplishments

Waste Prevented	1,087 tons
Recycling Collection	44,175 tons
Recycled-Content Purchases	415 tons
Total Cost Savings	$2,378,700

RECYCLING OF SPECIFIC MATERIALS

Metals: Steel, copper, aluminum, brass, mercury, and zinc from appliances, light fixtures, cladding, flashings, plumbing, wiring, and structural materials are easily recyclable, and doing so can usually generate revenue.

Paper and cardboard: Paper and cardboard constitute the single largest component of municipal landfill waste; both are easily recycled. The price of recycled paper products fluctuates widely, depending on supply and demand as well as pricing of virgin wood fiber. Materials made from recycled paper include new office paper and cardboard, cellulose insulation, sound insulation board, drywall facing, and certain wallpapers.

Plastics: Certain plastics are recycled widely. For ease of recycling, different types of plastic resin need to be kept separate; in fact, small amounts of one type of plastic, such as PVC, can damage equipment used to recycle other types of plastic. Composite materials are more difficult to recycle. Recycled plastics are used in producing waste receptacles, office accessories, and weather-resistant outdoor lumber products used for landscaping and furniture.

Glass: Glass beverage containers are easy to recycle in any facility with food services. Window glass cannot be recycled with beverage glass, because of differences in the formulation; it is generally recycled only at window glass factories. Beverage container glass is recycled into fiberglass insulation—all major manufacturers now use at least 30% recycled glass—and asphalt shingles, concrete aggregate, brick, and ceramic tile. Glass cullet has also been used for drainage fill.

Rubber: Tires and other rubber products can be recycled into flooring materials, low-grade industrial uses, road surfacing, speed bumps, and parking wheel stops.

Fluorescent lamps and office equipment: Fluorescent lamps contain mercury and should always be recycled through specialized facilities (see Contacts). Obsolete office equipment can be donated to nonprofit organizations for reuse or can be recycled, depending on its age and quality.

Compost: Organic matter generated from food services and landscaping operations should be composted if possible. This not only reduces landfilling but also provides a high-grade soil amendment for landscaping.

Provide waste collection areas for recyclables in any building or facility. In large, multistory buildings this may include specialized chutes and bins for recyclables. Separate storage areas should be provided for each different material collected. Planning for storage and handling of recyclables as part of the design of a facility is strongly advised.

References

Greening the Government: A Guide to Implementing Executive Order 13101, Office of the Federal Environmental Executive; www.ofee.gov/.

WasteWise Publications: www.epa.gov/wastewise/pub.htm.

Contacts

Office of the Federal Environmental Executive, Mail Code 1600S, Ariel Rios Building, 1200 Pennsylvania Avenue, NW, Washington, DC 20460; (202) 564-1297.

WasteWise Program (5306W), U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; (800) EPA-WISE.

Association of Lighting and Mercury Recyclers, 2436 Foothill Blvd., Suite K, Calistoga, CA 94515; (707) 942-2197.